

### [54] AMBIENT LIGHT AND ELECTROMAGNETIC NOISE REDUCTION CIRCUIT

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### [57] ABSTRACT

A circuit for reducing noise and increasing the reliability of touch panels involves the use of a supplemental noise or electromagnetic interference pickup lead which extends generally coextensively with the parallel connected outputs from a series of successively coupled photodetectors and a high pass filter for substantially reducing the noise signals created by variations in the level of ambient light. When the photodetectors output is connected to one of the inputs of a differential operational amplifier, and the compensating pickup lead is connected to the opposite polarity other input, the noise is substantially cancelled out, and a cleaned-up photodetector pulse is provided. A pulse forming circuit squares up the photodetector output signal pulse; and a hysteresis type storage or buffer 15 circuit is employed to indicate the presence or absence of photodetector output signals, from successive photodetectors, thereby indicating whether or not the light beams are interrupted either fully or partially.

19 Claims, 8 Drawing Figures

